



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,585	07/11/2003	Donald Albert Paquet JR.	FA1048USNA	3692

23906 7590 07/27/2009  
E I DU PONT DE NEMOURS AND COMPANY  
LEGAL PATENT RECORDS CENTER  
BARLEY MILL PLAZA 25/1122B  
4417 LANCASTER PIKE  
WILMINGTON, DE 19805

EXAMINER
----------

CHEUNG, WILLIAM K

ART UNIT	PAPER NUMBER
----------	--------------

1796

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

07/27/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/617,585	<b>Applicant(s)</b> PAQUET ET AL.	
	<b>Examiner</b> WILLIAM K. CHEUNG	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 19-30 is/are pending in the application.
- 4a) Of the above claim(s) 2,4 and 22-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-17,19-21 and 26-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. In view of the amendment filed April 17, 2009, claim 18 has been cancelled. Claims 1-17, 19-30 are pending. Claims 2, 4, 22-25 are drawn to non-elected subject matter. Claims 1, 3, 5-17, 19-21, 26-30 are examined with merit. Regarding applicants' response filed April 17, 2009, which states that claims 1-30 are pending, applicants fail to recognize that claim 18 has been cancelled by the amendment filed April 17, 2009.
2. In view of the amendment filed April 17, 2009, the rejection of Claims 1, 3, 5-21, 26-30 under 35 U.S.C. 112, second paragraph, is withdrawn.
3. In view of the amendment filed April 17, 2009, the rejection of Claims 1, 3, 5-11, 13-21, 26-30 under 35 U.S.C. 102(b) as being anticipated by Rink et al. (US 6,013,739), is withdrawn. Further, the rejection of Claims 12 under 35 U.S.C. 103(a) as being unpatentable over Rink et al. (US 6,013,739) in view of Roesler et al. (US 2003/0232942 A1), is withdrawn. Rink et al. do not teach a composition comprising between 0.01 to 10 weight percent of non-functional methacrylate monomers.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1796

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 5-11, 13-16, 18-21, 26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Hintze-Bruning et al. (US 6,297,314).

1. (Currently Amended) A coating composition comprising crosslinkable and crosslinking components, wherein said crosslinkable component ~~consists essentially of~~ comprises:

a copolymer having on an average 2 to 25 crosslinkable groups selected from the group consisting of hydroxyl, acetoacetoxy, carboxyl, primary amine, secondary amine, epoxy and a combination thereof; a weight average molecular weight ranging from about 1000 to 4500; a polydispersity ranging from about 1.05 to 2.5; wherein said copolymer is polymerized from a monomer mixture ~~consisting of~~ comprising one or more non-functional acrylate monomers and one or more functional methacrylate monomers provided with said ~~functional~~ crosslinkable groups, and optionally one or both of: (i) 0.01% to 10% by weight of one or more functional acrylate monomers provided with said ~~functional~~ crosslinkable groups and (ii) 0.01% to 10% by weight of one or more non-functional methacrylate monomers; wherein said functional methacrylate monomers are present in an effective amount for producing said copolymer having on an average 2 to 25 crosslinkable groups and having said weight average molecular weight; wherein said copolymer is produced by free radical polymerization of said monomer mixture at a polymerization temperature ranging from about 120°C to 300°C; and

wherein said crosslinking component for said crosslinkable groups is selected from the group consisting of polyisocyanate, polyamine, ketimine, melamine, epoxy, polyacid and a combination thereof.

26. (Currently Amended) A coating composition comprising crosslinkable and crosslinking components, wherein said crosslinkable component ~~comprises~~ consists essentially of:

a copolymer having on an average 2 to 25 crosslinkable groups selected from the group consisting of hydroxyl, acetoacetoxy, primary amine, secondary amine, and a combination thereof; a weight average molecular weight ranging from about 1000 to 4500; a polydispersity ranging from about 1.05 to 2.5; wherein said copolymer is polymerized from a monomer mixture consisting of one or more non-functional acrylate monomers and one or more functional methacrylate monomers provided with said functional groups, and optionally one or both of: (i) 0.01% to 10% by weight of one or more functional acrylate monomers and (ii) 0.01% to 10% by weight of one or more non-functional methacrylate monomers provided with said functional groups; and

wherein said crosslinking component for said crosslinkable groups is selected from the group consisting of polyisocyanate, ketiminc, melaminc, and a combination thereof.

Hintze-Bruning et al. (col. 1, line 5-21) claim a coating composition comprising copolymers containing hydroxyl groups as a crosslinkable component as claimed, and polyisocyanate as a crosslinking component. Hintze-Bruning et al. (col. 7, line 32-39) clearly disclose the molecular weight (Mn of 1000 to 40,000) which meets the molecular weight range as claimed. Regarding the claimed polymerization temperature, Hintze-Bruning et al. (col. 8, line 47-49) clearly state that the polymerization is to be conducted at a temperature between 80 and 160 °C. Regarding the claimed number of crosslinkable group onto the prepared copolymers, Hintze-Bruning et al. clearly teach the use of more than one crosslinkable (hydroxyl containing) monomers in the disclosed prepared copolymers. Since the molecular weight of the disclosed copolymers are between 1000 to 40,000 and the molecular weight of acrylic monomers are greater than

Art Unit: 1796

100 g/mole, the crosslinkable groups on the disclosed copolymer should range from 10 to 100, which meets the average number of crosslinkable as claimed.

Regarding the Tg limitation of claim 6 and the VOC limitation of claim 7, in view of the substantially identical composition as claimed and the composition as disclosed in Rink et al., the examiner has a reasonable basis that the claimed Tg and the claimed VOC properties are inherently possessed in Rink et al.

Regarding claim 21 which requires the polymerization to take place at a reactor "gage pressure ranging from 0.1 to 2.86", the feature carries very little patentable weight since the claimed invention relates to a coating composition, where the pressure of a process can not change the composition make-up of the claimed coating composition.

In view of the reasons set forth above, Claims 1, 3, 5-11, 13-16, 18-21, 26-30 are anticipated.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1796

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hintze-Bruning et al. (US 6,297,314) in view of Roesler et al. (US 2003/0232942 A1).

Hintze-Bruning et al. (col. 1, line 5-21) claim a coating composition comprising copolymers containing hydroxyl groups as a crosslinkable component as claimed, and polyisocyanate as a crosslinking component. Hintze-Bruning et al. (col. 7, line 32-39) clearly disclose the molecular weight (Mn of 1000 to 40,000) which meets the molecular weight range as claimed. Regarding the claimed polymerization temperature, Hintze-Bruning et al. (col. 8, line 47-49) clearly state that the polymerization is to be conducted at a temperature between 80 and 160 °C. Regarding the claimed number of crosslinkable group onto the prepared copolymers, Hintze-Bruning et al. clearly teach the use of more than one crosslinkable (hydroxyl containing) monomers in the disclosed prepared copolymers. Since the molecular weight of the disclosed copolymers are between 1000 to 40,000 and the molecular weight of acrylic monomers are greater than 100 g/mole, the crosslinkable groups on the disclosed copolymer should range from 10 to 100, which meets the average number of crosslinkable as claimed.

The difference between the invention of claim 12 and Hintze-Bruning et al. is that Hintze-Bruning et al. are silent on a coating composition comprising isocyanatopropyl trimethoxy silane.

Roesler et al. (abstract; 0061) disclose polyurethane coating compositions that are very similar to the polyurethane coating compositions of Rink et al., in that both disclose the use of polyols, and polyisocyanates for preparing polyurethane based coating compositions. In view that both Roesler et al. and Rink et al. are in the field of endeavors of developing novel polyurethane coating compositions, it would have been obvious to one of ordinary skill in art to incorporate the isocyanatopropyl trimethoxy silane teaching of Roesler et al. (page 5, 0067) into composition teachings in Roesler et al. to obtain the invention of claim 12, motivated by the expectation of success of developing a coating system that is moisture curable (page 1, 0001; page 5, 0069-0074).

8. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hintze-Bruning et al. (US 6,297,314) in view of Gupta et al. (US 6,867,250).

Hintze-Bruning et al. (col. 1, line 5-21) claim a coating composition comprising copolymers containing hydroxyl groups as a crosslinkable component as claimed, and polyisocyanate as a crosslinking component. Hintze-Bruning et al. (col. 7, line 32-39) clearly disclose the molecular weight (Mn of 1000 to 40,000) which meets the molecular weight range as claimed. Regarding the claimed polymerization temperature, Hintze-Bruning et al. (col. 8, line 47-49) clearly state that the polymerization is to be conducted



Art Unit: 1796

at a temperature between 80 and 160 °C. Regarding the claimed number of crosslinkable group onto the prepared copolymers, Hintze-Bruning et al. clearly teach the use of more than one crosslinkable (hydroxyl containing) monomers in the disclosed prepared copolymers. Since the molecular weight of the disclosed copolymers are between 1000 to 40,000 and the molecular weight of acrylic monomers are greater than 100 g/mole, the crosslinkable groups on the disclosed copolymer should range from 10 to 100, which meets the average number of crosslinkable as claimed.

The difference between the invention of claim 17 and Hintze-Bruning et al. is that Hintze-Bruning et al. are silent on a coating composition comprising aldimine.

However, Hintze-Bruning et al. (col. 9, line 64 to col. 10, line 2) disclose that the use of blocked isocyanate are suitable for the disclosed coating composition. Gupta et al. (col. 31, line 21-30) disclose the advantages of using latent reactive functionality (where block isocyanate are used) in a coating composition comprising polyurethane (col. 18, line 26-30).

The term "latent reactive" functionality within the meaning of the present invention and, as would clearly be understood by those persons of ordinary skill in the art, refers to reactive functionality which is blocked or masked to prevent premature reaction. As examples of a latent reactive functionality may be mentioned ketimines and aldimines (amines blocked, respectively, with ketones and aldehydes); amine-carboxylate salts; and blocked isocyanates such as alcohol (carbamates), oxime, and caprolactam blocked variations.

In view of the substantially identical endeavors of developing blocked isocyanate-containing based coating, it would have been obvious to one of ordinary skill in art to

Art Unit: 1796

incorporate the teachings of Gupta et al. into Hintze-Bruning et al. to obtain the invention of claim 17.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K. Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

Art Unit: 1796

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov> you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/William K Cheung/  
Primary Examiner, Art Unit 1796

William K. Cheung, Ph. D.  
Primary Examiner  
July 16, 2009